

**FORM EQP 5111 ATTACHMENT XIV.A12
CLOSURE AND POSTCLOSURE CARE COST ESTIMATES**

This document is an attachment to the Michigan Department of Environmental Quality's *Instructions for Completing Form EQP 5111, Operating License Application Form for Hazardous Waste Treatment, Storage, and Disposal Facilities*.

The administrative rules promulgated pursuant to Part 111, Hazardous Waste Management, of Michigan's Natural Resources and Environmental Protection Act, 1994 PA 451, as amended (Act 451), R 299.9702 and Title 40 of the Code of Federal Regulations (CFR), Part 264, Subpart H, establishes requirements for providing financial assurance for closure and, if necessary, postclosure care. Specifically, R 299.9702(1) requires the preparation of associated cost estimates. This license application template addresses the requirement for preparing a closure cost estimate and, if necessary, a postclosure care cost estimate. The cost estimates provided in this attachment are based on the closure and postclosure care activities detailed in Attachment XIV.A11. All references to 40 CFR citations specified herein are adopted by reference in R 299.11003.

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A12.A CLOSURE COST ESTIMATE
[R 299.9702(1) and 40 CFR §264.142]

The closure cost estimate covers the corresponding closure activities in the approved closure plan. These activities may include, but are not limited to, removal of waste inventory, decontamination, sampling and analysis, and closure certification. Unless otherwise specified in Section A11.A.3 of Attachment XIV.A11, the date of closure of the hazardous waste management units has not been determined. As such, it is not possible to predict, with any high degree of certainty, actual facility conditions or regulatory requirements at time of closure. Therefore, this closure cost estimate is based on closure of the unit within the next six months and includes a contingency estimate to account for media sampling and analysis, and removal based on current conditions.

The estimate assumes closure procedures are completed by a third party at the time facility closure would be most expensive (e.g., closure of the last Salzburg Landfill facility active cell(s) with a maximum inventory). The cost estimate for disposal assumes wastes generated during final closure of Salzburg Landfill facility will be treated and contaminated equipment disposed rather than recovered or salvaged. The total closure cost for the closure of the Dow Salzburg Landfill in Midland, Michigan is estimated at **\$6,786,000**. The closure cost estimate breakdown by unit is provided in Section A12.A.1. The unit-specific work sheet for the Landfill is provided in Table A12.A.2.

Additional cost estimate assumptions are listed below.

1. All hazardous waste generated during final closure of the Salzburg Landfill facility will be transported off site to a licensed facility in accordance with all applicable state and federal regulations.
2. Costs are based on current year costs. All labor rates reflect commercial rates and include fringe benefits, payroll burden, and taxes.
3. Total costs include a 20 percent contingency for administrative and a 20 percent contingency for miscellaneous operating costs.

This closure cost estimate will be maintained at the facility. It will be revised whenever a change in the closure plan affects the cost of closure. It will be adjusted annually as required by pertinent regulations or when the types and quantity of wastes received at the facility change.

A12.A.1 Closure Cost Estimate Breakdown

Table A12.A.1 Facility Closure Cost Estimate Breakdown by Unit*

1.	Landfills	\$ 6,786,000
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* Tables not included at this time for Land Treatment Units, Drip Pads, and Hazardous Waste Munitions and Explosives Storage Units

Table A12.A.2 Landfills Closure Cost Estimate

Dow Salzburg Landfill in Midland, Michigan

Activity		Estimated Cost
1.	Installation of base soil for Geocomposite Clay Liner	\$ 266,000
2.	Installation of GCL	\$ 795,000
3.	Installation of Geomembrane	\$ 586,000
4.	Installation of Geocomposite Drainage Membrane (GMB)	\$ 392,000
5.	Installation of Cover Soil	\$ 254,000
6.	Installation of Topsoil	\$ 201,000
7.	Establishment of Vegetative Cover	\$ 63,000
8.	Miscellaneous site work, including installation of perimeter drainage, gas vents, storm water runoff downspouts, shaping and grading final cover.	\$ 650,000
9.	Clean cover soil for inter-cell notch areas (between cells 17-19 to 20-22 and 20-22 to 23-28 phase 1)	\$ 280,000
10.	Third party Construction Quality Assurance	\$ 300,000
11.	Construction Management	\$ 450,000
12.	Decontamination	\$ 50,000
13.	Sampling and Analysis	\$ 35,000
14.	Demolition of 3600 and 3601 Buildings	\$ 250,000
15.	Transportation for 3600 and 3601 Building demolition debris	\$ 28,000
16.	Treatment and Disposal of Waste Inventory and Cleanup Wastes	\$ 400,000
17.	Subtotal of Closure Costs	\$ 5,000,000
18.	Engineering Expenses	\$ 500,000
19.	Survey Plat	\$ 5,000
20.	Certification of Closure	\$ 150,000
21.	Subtotal	\$ 5,655,000
22.	Contingency Allowance	\$ 1,131,000
Total Cost of Closure		\$ 6,786,000

A12.B POSTCLOSURE COST ESTIMATE

[R 299.9702(1) and 40 CFR §264.144]

The postclosure care cost estimate covers activities that will be performed after closure of the landfill unit or any unit with waste left in place. These activities include maintaining the integrity of the containment system and the monitoring system and performing postclosure monitoring. The total postclosure cost for the postclosure care of the Dow Salzburg Landfill in Midland, Michigan is estimated at **\$11,184,000** (30 year cost). The postclosure care activities are presented in Section A11.B.4 of Attachment XIV.A11. The associated cost estimate breakdown is provided in Table A12.B.1.

A12.B.1 Postclosure Care Cost Estimate Breakdown

Table A.12.B.1 Annual Postclosure Care Cost Estimate

Dow Salzburg Landfill in Midland, Michigan

Activity		Estimated Cost
1.	Removal of Leachate	\$ 70,000
2.	Site Security	\$ 10,400
3.	Maintenance of Vegetative Cover	\$ 43,500
4.	Maintenance and Inspection	\$ 13,000
5.	Environmental Monitoring and Reporting	\$ 130,000
6.	Deed Notation	\$ 1,500
7.	Maintenance and Inspection of Cap	\$ 5,000
8.	Subtotal of Postclosure Costs	\$ 273,400
9.	Engineering Expenses	\$ 27,400
10.	Certification of Postclosure	\$ 10,000
11.	Subtotal	\$ 310,800
12.	Contingency Allowance	\$ 62,000
Total Annual Cost of Postclosure Care		\$ 372,800
Annualized costs are multiplied over 30 years**		\$ 11,184,000

**Number of years of expected postclosure care for the facility.